

## American Samoa Joint Cannery Outfall

### COS Samoa Packing StarKist Samoa

## ANALYSIS OF PROPOSED NPDES PERMIT CONDITIONS

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The discussions below describe the differences between the existing NPDES permit and the rationale for proposing these changes. Many of the proposed sections are based on informal discussions with EPA staff. The technical justifications are based on the results of the studies done under the existing permit.

### **Proposed Section A (Existing Section A):** **EFFLUENT LIMITS AND MONITORING REQUIREMENTS**

Discharge limitations will be based on permit application data and discussions with EPA. Numerical limits are not included in the proposed permit conditions at this time. Proposed monitoring frequencies are discussed below.

BOD<sub>5</sub> monitoring is reduced to monthly, since a large database has been established. Based on the existing data EPA may decide to institute a numerical limitation or drop the monitoring. There is a dissolved oxygen (DO) water quality standard, which argues for a limitation, or at least monitoring. There have been no violations of this standard, which argues for dropping the monitoring and relying on the receiving water monitoring. Initial dilutions of over 100:1 result in little chance of violations.

Suspended solids and oil & grease monitoring is reduced to weekly from twice per week. This is based on the established database. EPA may be reluctant to do this, but it appears reasonable.

Total ammonia is maintained at weekly monitoring. Any observed toxicity in the effluent would most likely be caused by ammonia. Thus, reductions in ammonia monitoring are unlikely.

Total phosphorous and total nitrogen monitoring is reduced to one set of samples (two in a given week) per month. The receiving water monitoring indicates no violations, even within the mixing zone. However, the option for additional monitoring is allowed (as always) to address potential daily spikes that, although below the daily maximum limitation, would unduly bias the monthly average limitation. The potential shift to a weighted-average approach is retained, although it was not instituted in the existing report. This point requires further consideration.

Zinc and copper monitoring is proposed to be monthly. This is based on the database that has been established. Copper was added to the list. Zinc was increased from semi-annual to monthly. Both of these parameters will require mixing zones, and monthly monitoring appears reasonable.

Cadmium, chromium, lead, and mercury monitoring is dropped. There were no limitations for these metals and monitoring was to determine if limitations are required. Based on the data, the effluent has been in compliance for these parameters.

It may be that the dissolved fraction of metals, rather than the total should be monitored in the future. This needs to be clarified with EPA.

#### **Proposed Section B (Existing Section B): DISCHARGE SPECIFICATIONS**

This section was revised only to eliminate monitoring station 17 for reasons described in detail in Section E below. The location of this station adjacent to the closest coral reef to the discharge argues against removing it. However, monitoring at other nearby stations, and the ability of ASEPA or EPA to restore this station if any concerns arise, argue that it is unnecessary. This station is particularly difficult to sample in a safe fashion because of its location next to a reef that is relatively well exposed to ocean waves. Safety considerations argue against retaining it since the existing data shows no potential for non-compliance.

#### **Proposed Section C (Existing Section C): PROTECTED AND PROHIBITED USES**

This section remains the same, unless there are changes in the American Samoa water Quality Standards (ASWQS) that need to be reflected here by EPA.

#### **Proposed Section D (Existing Section D): TOXICITY**

1. Effluent Biomonitoring. A number of changes were made to this section to reflect the current procedures that have been previously approved by EPA. These include:

The starting date was extended (90 to 180 days) to keep the current series of test in sequence with future tests regardless of the start date of the permit.

The reference to the guidance document was updated.

The previously approved substitute species was included.

The dilution range was made more general to be consistent with current practice.

The relaxation of holding times and sample preservation was recognized to reflect the logistics encountered in American Samoa.

The use of a single composite sample was formalized to be consistent with current practice.

EPA and ASEPA should have no problems with these changes, since they have already been approved. The statistical methods required need to be reviewed more carefully to make sure they are consistent with what is actually being reported.

2. Priority Pollutant Scan. The requirements for chemical analysis have been relaxed to require a minimum of a single scan for permit renewal. The justification is based on the existing database and information available.
3. Toxicity Reopener. This remains the same as in the existing permit.

#### **Proposed Section E (Existing Section E): RECEIVING WATER QUALITY MONITORING PROGRAM**

The major change in this section is a reduction in the number of stations and depths to be sampled. The required stations are clustered around the discharge, with reference stations inside and outside the harbor. This is fully justified based on the previous data collected. Some monitoring will be required to verify compliance since there is a mixing zone for nutrients. However, there have been no measurements indicating non-compliance with (ASWQS) in the last four or five sampling campaigns conducted by CH2M HILL. A substantial reduction in stations is reasonable. The stations listed in the proposed conditions maintain critical historical stations in the inner harbor and transition zone. ASEPA and EPA retain the ability to increase the monitoring if the situation changes.

The latitude and longitude need to be verified and included (there were some errors in the existing permit, which were corrected).

The navigation and location language has been modified to be somewhat more flexible. Sampling is done from a small boat and maintaining station within 6 meters, as specified in the existing permit, is easy in the interior portion of the harbor, but impossible outside the harbor (Station 5). The positioning system currently being used and reported appears to be acceptable and is certainly technically defensible.

The list of parameters remains essentially the same as in the existing permit. However, the measurement of pH, suspended solids, and light penetration seem unnecessary or redundant and should be reconsidered. Further discussion with EPA should be initiated to discuss these parameters. However, they remain in the proposed conditions since the added effort and expense is relatively small.

A one time expanded survey is required as a part of a more comprehensive water quality survey desired by EPA (see Section H).

**(Existing Section E):**  
**DYE OR TRACER STUDIES**

Two dye studies were previously done that fully validated the initial dilution and mixing zone models used. There is no need to repeat these studies and the requirement is eliminated.

**Proposed Section F (Existing Section G):**  
**SEDIMENT MONITORING**

The previous studies have shown no impact of the new outfall and only a very slow change in the inner harbor near the old outfalls. Therefore, the frequency of the monitoring has been reduced. This is supported by the previous results.

A one-time expanded survey is required as a part of a more comprehensive water quality survey desired by EPA (see Section H).

**(Existing Section H):**  
**EUTROPHICATION STUDIES**

The previous study as well as the water quality monitoring has shown no problems with excess nutrients stimulating undesirable phytoplankton growth. ASWQS for nutrients and chlorophyll-a are met throughout the harbor. There is no need to repeat these studies and the requirement is eliminated.

**Proposed Section G (Existing Section I):**  
**CORAL REEF SURVEY**

The previous studies have shown no coral reef degradation attributable to the discharge, or within the harbor as a whole. There are, in fact, indications of overall improvement. There are some observable problems in localized areas that are attributable to runoff and sediment loads from the watershed. It is unlikely that EPA would eliminate this monitoring entirely. The proposed study is less frequent, since the observed changes are very slow. The proposed study monitors only a subset of stations (about 25 percent of the full set) around the discharge. These stations were selected to be close to the discharge and representative examples in the middle and outer harbor.

**(Existing Section J):**  
**VERIFICATION OF MODELING PREDICTIONS**

The previous study, as well as the water quality monitoring and dye studies, have clearly demonstrated that the initial model simulations were conservative (predicted higher nutrient concentrations than actually observed). There is no need to repeat these studies and the requirement is eliminated.

**Proposed Section H (No Existing Section):**  
**FISH TISSUE STUDY**

This is a new study. It is a one-time study to pull of the various water quality monitoring together and assess potential environmental impacts. It is prudent for the canneries to carry out such a study. If done as proposed, concurrently with water quality and sediment monitoring, the additional cost is minimized. The cost savings on reducing or eliminating other studies is substantially greater than the marginal cost of this study. It also provides the canneries the opportunity to have technical input, participate and supervise this work.

**(Existing Section K):**  
**WASTEWATER TREATMENT SYSTEM EVALUATION**

This study was required in the existing permit. It was carried out and resulted in improvements. There is no need to re-do this study at this time and it was dropped from the proposed conditions. However, EPA may believe it is prudent to repeat the study or at least do a summary evaluation of current systems or status (a low-level effort).

**(Existing Section L):**  
**POLLUTION PREVENTION PROGRAM**

This study was required in the existing permit. It was carried out and resulted in improvements. There is no need to re-do this study at this time and it was dropped from the proposed conditions. However, EPA may believe it is prudent evaluate the ongoing status of the program (low level effort).

**Proposed Section I (Existing Section M):**  
**DEFINITIONS**

This section remains identical to the existing Section M permit language, unless it needs to be update to reflect current EPA practice.

**Proposed Section J (Existing Section N):**  
**QUALITY ASSURANCE / QUALITY CONTROL**

This section remains identical to the existing Section N permit language, unless it needs to be update to reflect current EPA practice.

**Proposed Section K (Existing Section O):**  
**REPORTING**

This section remains identical to the existing Section O permit language, unless it needs to be update to reflect current EPA practice.

**Proposed Section L (Existing Section P):**  
**EPA REGION IX STANDARD CONDITIONS**

This section remains identical to the existing Section P permit language, unless it needs to be update to reflect current EPA practice.